

In the Claims:

1. (Currently amended) An internal surface chucking mechanism (ISM) ~~comprising~~ having a coupling mechanism ~~(103, 105, 107)~~ activable for gripping and for release of a workpiece (W) in process on a processing machine, the workpiece defining an external surface and an internal surface configured for access from the outside, and at the processing machine ~~comprising~~:

an inner chamber ~~(70) defining~~ having an axis (A) and a volume of space inside the processing machine,

an external surface chucking mechanism (EXS) releasably and retrievably retained in axial alignment in the inner chamber and configured for gripping and for releasing an external surface of the workpiece in process on the processing machine, and

a push rod ~~(7)~~ operatively associated with the EXS to controllably command gripping and release of the external surface of the workpiece in process, whereby retrieval of the EXS from the inner chamber and insertion therein of the IMS in replacement, provides operation of the processing machine in a first configuration with an EXS, and in a second configuration with an ISM, and vice versa,

characterized in that:

the ISM ~~comprises~~ further having a bushing ~~(101) defining~~ with a bushing outside and a bushing inside, the bushing outside being configured to be retrievably received in axial alignment inside the inner chamber ~~(70)~~, and the bushing inside being configured for receiving the coupling mechanism ~~(103, 105, 107)~~, and

~~the ISM is configured for insertion and retention in the inner chamber to provide~~

~~reversible exchange in replacement of the EXS, for operative association with the push rod to activate the coupling mechanism, and for retrieval from the inner chamber,~~

~~whereby retrieval of the EXS from the inner chamber and insertion therein of the IMS in replacement, provides operation of the processing machine in a first configuration with an EXS, and in a second configuration with an ISM, and vice versa.~~

the coupling mechanism having a collet with jaw pads on collet fingers normally in retracted position, and extensible radially outward to grip the workpiece, a plunger with a rod head, and a spring biasing the plunger away from the collet, and the ISM being configured for insertion and retention in the inner chamber, and for retrieval therefrom, to provide reversible exchange in replacement of the EXS, in operative association with the push rod to activate the coupling mechanism: comprising

forward translation of the push rod against the plunger for urging the rod head against the collet fingers for the jaw pads to grip an inner diameter of the workpiece, while biasing the spring between the plunger and the collet, and

backward translation of the push rod away from the plunger causing the spring to actively bias the plunger backward, and the jaw pads to retract radially inward, whereby the gripped workpiece is released.

2. (Currently amended) The ISM according to Claim 1, ~~further characterized in that wherein~~

the ISM is operable with a processing machine operating a process selected, alone and in combination, from the group of processes consisting of material removal, fastening, joining, surface treatment, and quality assurance.

3. (Currently amended) The ISM according to Claim 1, ~~or 2, further characterized in that~~ wherein

the ISM is configured for operation both when rotative and when non-rotative.

4. (Currently amended) The ISM according to Claim 1, ~~or 2, further characterized in that~~ wherein

the ISM is operable with a processing machine ~~comprising~~ having a rotating spindle ~~[(3)]~~.

5. (Currently amended) The ISM according to Claim 1, ~~or 2, further characterized in that~~ wherein the ISM and the EXS are mutually and reversibly exchangeable *in situ*.

6. (Currently amended) The ISM according to Claim 1, ~~or 2~~, wherein:
the processing machine ~~defines~~ has an initial external configuration when operating an EXS, and

~~the ISM is further characterized in that~~
exchange of the EXS with the ISM maintains unaltered the initial external configuration of the processing machine.

7. (Currently amended) The ISM according to Claim 1 ~~or 2, further characterized~~
~~in that~~
~~the ISM is configured for operation both when rotative and when non-rotative,~~
~~and~~
~~the ISM and the EXS are mutually and reversibly exchanged~~ in situ wherein
the bushing is configured for retention in the processing machine inside the
spindle, which has an outside front threaded portion accommodated for fastening a cap-
nut thereon, and
when the bushing is received in axial alignment inside the inner chamber , and
the cap-nut is fastened to the spindle, axial relative translation between the bushing and
the spindle is prevented.

Claims 8-14 (Canceled)

15. (Currently amended) A method for providing an internal surface chucking mechanism (ISM) ~~comprising~~ having a coupling mechanism ~~(103, 105, 107)~~ activable for gripping and for release of a workpiece (W) in process on a processing machine, the workpiece ~~defining~~ having an external surface and an internal surface configured for access from the outside,
at the processing machine comprising:
an inner chamber ~~(70) defining~~ having an axis and a volume of space inside the processing machine,

an external surface chucking mechanism (EXS) releasably and retrievably retained in axial alignment in the inner chamber and configured for gripping and for releasing the external surface of the workpiece in process on the processing machine, and

a push rod (7) operatively associated with the EXS to controllably command gripping and release of the external surface of the workpiece in process,

~~characterized by the steps of:~~

whereby retrieval of the EXS from the inner chamber and insertion therein of the IMS in replacement, provides operation of the processing machine in a first configuration with an EXS, and in a second configuration with an ISM, and vice versa,

the ISM further has a bushing with a bushing outside and a bushing inside,
~~providing a bushing (101) comprising an outside and an inside, the bushing outside being~~
configured to be retrievably received in axial alignment inside the internal chamber (70),
and the bushing inside being configured for receiving the coupling mechanism (103, 105,
107), and

~~configuring the ISM for insertion and retention in the inner chamber to provide reversible exchange in replacement of the EXS, for operative association with the push rod to activate the coupling mechanism, and for retrieval from the inner chamber, and~~

~~retrieving the EXS from the inner chamber and inserting therein of the IMS in replacement, for providing operation of the processing machine in a first configuration with an EXS, and in a second configuration with an ISM, and vice versa.~~

the coupling mechanism has a collet with jaw pads on collet fingers normally in retracted position, and extensible radially outward to grip the workpiece, a plunger with

a rod head, and a spring biasing the plunger away from the collet, and the ISM is configured for insertion and retention in the inner chamber, and for retrieval therefrom, to provide reversible exchange in replacement of the EXS, for operative association with the push rod to activate the coupling mechanism, comprising:

translating the push rod forward against the plunger for urging the rod head against the collet fingers for the jaw pads to grip an inner diameter of the workpiece, while biasing the spring between the plunger and the collet, and

translating the push rod backward away from the plunger, causing the spring to actively bias the plunger backward, and for the jaw pads to retract radially inward, whereby the gripped workpiece is released.

16. (Currently amended) The method according to Claim 15, ~~further characterized by the step of wherein~~

~~operating~~ the ISM is operable with a processing machine for running a process selected, alone and in combination, from the group of processes consisting of material removal, fastening, joining, surface treatment, and quality assurance.

17. (Currently amended) The method according to Claim 15, ~~or 16, further characterized by the step of wherein~~

~~configuring~~ the ISM is configured for operation both when rotative and when non-rotative.

18. (Currently amended) The method according to Claim 15, ~~or 16, further characterized by the step of wherein~~

operating the ISM is operates with a processing machine ~~comprising~~ having a rotating spindle (3).

19. (Currently amended) The method according to Claim 15, ~~or 16, further characterized by the step of wherein~~

replacing the ISM is replaceable with the EXS *in situ*, in mutual and reversible exchange.

20. (Currently amended) The method according to Claim 15, ~~or 16, wherein:~~
the processing machine ~~defines~~ has an initial external configuration when operating an EXS, and
~~the method is further characterized by the step of~~

~~maintaining~~ the initial external configuration of the processing machine remains unaltered after exchange of the EXS with the ISM.

21. (Currently amended) The method according to Claim 15, ~~or 16, further characterized by the steps of wherein~~

~~configuring the ISM for operation both when rotative and when non-rotative, and
replacing the ISM with the EXS *in situ*, in mutual and reversible exchange [[.]]~~

the bushing is configured for retention in the processing machine inside the spindle, which has an outside front threaded portion accommodated for fastening a cap-nut thereon, and

when the bushing is received in axial alignment inside the inner chamber, and the cap-nut is fastened to the spindle, axial relative translation between the bushing and the spindle is prevented.

Claims 22-28 (Canceled)